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DEVELOPMENT OF A DESIGN HANDBOOK ON  
STRESS-CORROSION CRACKING

Roger W. Staehle, et al

Ohio State University

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) <p>Significant progress has been made in compiling the data base from which the contents of the handbook on stress corrosion cracking will be extracted.</p> <p>In a first effort, extensive computerized literature searches were done. A second effort to collect available information on stress corrosion cracking was undertaken by contacting in writing more than two hundred recognized specialists active in this field. Early results of these efforts are presented.</p>		

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Development of a Design Handbook  
On Stress-Corrosion Cracking

I. Progress to date

a. Computerized literature search.

Significant progress has been made in compiling the data base from which the contents of the handbook will be extracted. Mostly in cooperation with the Battelle Columbus Laboratories computerized literature searches were made with the following data bases:

1. DDC (Defence Documentation Center)
2. MCIC (Metals and Ceramic Information Center)
3. AEC (Atomic Energy Commission)
4. CDA (Copper Development Association)
5. NASA (National Aeronautics and Space Administration)
6. Lockheed Information Retrieval Service
7. HIC (Mechanized Information Center - OSU Libraries)

These literature searches all yielded several hundred (some more than a thousand) hits on papers and documents concerning stress corrosion cracking, corrosion fatigue, hydrogen embrittlement, and liquid metal embrittlement. The most relevant papers and documents were selected and ordered. More than 50 percent of the publications so identified are already assembled at O.S.U.

b. Letters to stress corrosion specialists.

A second effort to collect available information on stress corrosion cracking and corrosion fatigue was undertaken by contacting in writing more than two hundred recognized specialists active in the fields of stress corrosion and corrosion fatigue. The letters that were sent to these specialists outlined the project, asked for the contribution of information, both published and unpublished, and contained a questionnaire for convenient return. A specimen

of the letters that were sent out is attached as Appendix I. To date, about 50 questionnaires have been returned, with more than 90% of them pledging information in the form of papers, reports, failure statistics, and failure analysis concerned with stress corrosion and corrosion fatigue. Already, over one thousand recent reports and papers on stress corrosion and corrosion fatigue have been compiled. The names of those specialists contacted so far are given in Appendix II. The letters sent out had two purposes:

1. solicit contributions to the handbook
2. generate publicity for the handbook

The very high percentage of pledges to contribute information to the handbook on the returned questionnaires gives us confidence that we will be successful on the first account.

The second objective was to generate publicity. We have achieved this objective and acclaim as well. Many specialists contacted have not only returned their questionnaires with promises to contribute but have also sent letters and remarks indicating what they thought of the ARPA handbook project on stress corrosion cracking. Appendix III gives a collection of such remarks.

## II. Work Scheduled for Next Reporting Period

The major effort will consist in organizing and studying the information which was compiled, and extracting data from it for the handbook sections on individual alloy systems.

Parallel to the digestion of the information already received, we will keep up our effort to obtain further relevant reports on stress corrosion and corrosion fatigue. This will mainly be done by following up on the returned questionnaires. In a small number of cases, personal visits to laboratories generating stress corrosion and corrosion fatigue data will be necessary.



**THE OHIO STATE UNIVERSITY**

**Subject: Handbook of Stress Corrosion Cracking and Corrosion Fatigue  
of Metallic Materials**

**Dear**

We are preparing a comprehensive handbook on stress corrosion cracking and corrosion fatigue of metallic materials. We are soliciting your cooperation in this endeavor specifically in:

1. Reviewing draft chapters as they are prepared
2. Helping us to assure that our treatment is as thorough as possible with respect to including previously unpublished information from your organization

This handbook is a major cooperative effort among government agencies, universities, and industries. The Advanced Research Projects Agency (ARPA) is sponsoring this program at Ohio State with the objective of focusing and synthesizing the widely scattered literature so that it can be used effectively and reliably by the design and materials communities. The program is for three years and has sufficient funding to permit a proper analysis and presentation of the data. We have already received commitments from some major alloy producers and users to contribute their research results and experience with failed components.

In order to assure the usefulness and quality of the handbook the following specific associated programs are underway:

1. A steering committee headed by H. W. Paxton, Director of Research at Carnegie-Mellon University, has been formed to provide guidance in the preparation and publication of the final volume. The members of this committee are primarily designers who represent the major segments of industry.
2. At Battelle Memorial Institute the Corrosion Division, under the direction of W. K. Boyd, is acquiring and evaluating published literature.

3. A separate "missionary" volume of about 250 pages is being prepared by Dr. B. F. Brown of American University. The purpose of this volume is to describe the essence of the problem in a readily accessible and digestible form.

We intend to make this handbook as comprehensive as possible. We plan to collect and analyze all the presently available information concerning stress corrosion (including hydrogen embrittlement) and corrosion fatigue of the technologically important alloy systems. The results of this effort will be presented in a way which is readily understood by the design engineer. The emphasis is on presentation of data rather than theories. Specifically, the handbook will include information of the following kind contained in the full range of important environments:

- Threshold stresses, survival tests, and time to failure by SCC in smooth and precracked specimens in all important environments
- Stress corrosion crack growth rates and stress intensity thresholds
- S-N curves, Goodman diagrams, and  $da/dN$  for fatigue tests
- Other information concerning the effects of environments on mechanical (design) properties of metallic materials, e.g. low cycle fatigue, creep, etc.

The handbook will contain chapters incorporating the above for the following alloy systems:

- |                                |                                    |
|--------------------------------|------------------------------------|
| - carbon steels                | - titanium alloys                  |
| - low alloy steels             | - zirconium alloys                 |
| - martensitic stainless steels | - magnesium alloys                 |
| - ferritic stainless steels    | - copper alloys                    |
| - duplex stainless steels      | - aluminum alloys                  |
| - austenitic stainless steels  | - other alloy systems (less common |
| - nickel base alloys           | metals, refractory metals, cast    |
|                                | iron, etc.)                        |

Moreover, it is planned to include sections concerned with:

- environmental cross reference
- testing techniques
- failure analysis and failure prevention
- procedures for interpreting and utilizing the data

Since your laboratories have contributed significantly to these topics, we are asking that you consider contributing such technical information to the handbook on stress corrosion and corrosion fatigue. To facilitate this, we could either keep your contribution confidential (i.e. without reference) or give you full credit for it in whatever form you desire. Your contribution would be a significant step toward the design of more reliable structures for the increasingly complex and aggressive environments of today's technology.

Your contribution could consist of laboratory or field reports concerning the occurrence of stress corrosion or corrosion fatigue. We are looking for both raw data and analysis of conditions under which these processes can occur. As illustrations and for educational purposes, we are interested in both failure reports, analysis, and statistics of failures of various types.

We intend to use and present your information on stress corrosion cracking and corrosion fatigue in a constructive manner, pointing out not only where there is danger of cracking in certain material-environment combinations, but also where alloys and environments can be expected to give satisfactory service behavior.

We plan to prepare rough drafts of all the sections on the alloy systems mentioned above. If you agree, we will send these sections to you as they become available for review by you or your specialists. This is to provide you with an early overview of the present state of the art, and we would give you an opportunity to criticize, amend, and/or fill in gaps in the material covered.

We are looking forward to hearing from you concerning your possible contribution to the handbook on stress corrosion cracking and corrosion fatigue.

Please return the attached form at your earliest convenience. Following this we will arrange direct contact and further discussion of the data.

Sincerely yours,

R. W. Staehle  
International Nickel Professor of  
Corrosion Science and Engineering

Markus O. Speidel  
Visiting Research Professor

RWS/MOS:cgw

Enclosure

\_\_\_\_\_  
Name of organization replying

\_\_\_\_\_  
Name of person submitting information

PARTICIPATION IN THE  
ARPA HANDBOOK PROJECT III  
STRESS CORROSION CRACKING AND CORROSION FATIGUE

1. We (will/are not able to) participate in the Handbook Project.
2. The proper person in our organization to contact for reading the draft chapters and furnishing information is:

Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone: \_\_\_\_\_

Other person in our organization who could furnish information on stress corrosion cracking, hydrogen embrittlement, and corrosion fatigue are:

Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone: \_\_\_\_\_

3. We have the following kinds of information available which might possibly be used:

(a) Laboratory data

(Check or fill in blanks)

yes

no

(1) Alloy Types

(2) Environments

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- (b) Failure analyses or descriptions relating to stress corrosion cracking or corrosion fatigue

yes no

Types

---

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- (c) Failure Statistics relating to stress corrosion cracking or corrosion fatigue

yes no

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- (d) Reprints and/or reports relating to stress corrosion cracking, corrosion fatigue, hydrogen embrittlement

yes no

---

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- ( ) We have other pertinent information as follows:

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Please return to:

Dr. H. O. Speidel  
Visiting Research Professor  
Department of Metallurgical Engineering  
The Ohio State University  
116 West 19th Avenue  
Columbus, Ohio 43210

Appendix II. Stress corrosion specialists whose contribution of information  
to the handbook was solicited

ADLER, Dr. P.H., Grumman Aerospace Corporation, Bethpage, New York  
AHMADIEH, Dr. Aziz, Pahlavi University, Shiraz, Iran  
ALTENPOHL, Dr. Dieter G., Schweizerische Aluminum AG, Zurich, Switzerland  
ANDERSON, Dr. William E., Battelle Pacific Northwest Lab, Richland, Washington  
ARGON, Professor A., Massachusetts Institute of Technology, Cambridge, Mass.  
ARUP, Dr. Hans, Korrosionscentralen, Copenhagen, Denmark  
ARVIDSON, Mr. S., A.B. Bofors, Steel Laboratory, Bofors, Sweden  
ASPEN, Dr. R.G., Westinghouse Electric Corporation, Pittsburgh, Pennsylvania  
BARSON, Dr. John, U.S. Steel Corporation, Monroeville, Pennsylvania  
BECK, Dr. Theodore R., Flow Research Incorporated, Kent Washington  
BEGLEY, Mr. Richard T., Westinghouse, Pittsburgh, Pennsylvania  
BELO, M. Da Cunha, Centre National de la Recherche Scientifique, France  
BENSON, Dr. Ray B. Jr., North Carolina State University, Raleigh, North Carolina  
BERG, Mr. O., Central Institute for Industrial Research, Blindern-Oslo, Norway  
BERGE, M.J.P., Electricite de France, Chatou, France  
BERGH, Director K.G., Jernkontoret, Stockholm, Sweden  
BERNSTEIN, Professor I.M., Carnegie Mellon University, Pittsburgh, Pennsylvania  
BIANCHI, Professor G., University of Milano, Italy  
BIRNBAUM, Dr. H.K., University of Illinois, Urbana, Illinois 61801  
BLACKBURN, Mr. Martin J., Pratt & Whitney Aircraft, East Hartford Connecticut  
BLOM, Dr. Uno, Sandvik A.B., Sandviken, Sweden  
BOCKRIS, Professor O'M, Flinders University of South Australia, Bedford Park, Australia  
BOHNENKAMP, Dr. K., Max-Planck-Institut für Eisenforschung, Dusseldorf, Germany  
BOMFORD, Dr. Michael J., Henry Wiggin & Co., Ltd., Hereford, England  
BOMBARA, Dr. G., Centro Sperimentale Metallurgico, Roma, Italy

BOND, Dr. A.P., Climax Molybdenum Co., Ann Arbor, Michigan  
BOYD, Mr. Walter, Battelle Memorial Institute, Columbus, Ohio  
BRANDRY, Dr. Fatiyah Al, University College of Swansea, Glam, England  
BRESSANELLI, Mr. Jerry, Crucible Materials Research Center, Pittsburgh, PA  
BROWN, B.F., American University, Washington, D.C.  
BRUNETAUD, Mr. M.R., S.N.E.C.M.A., Corbeil Essonnes, France  
BRUNNER, Dr. Hans, Institut Dr. Straumann, Waldenburg, Switzerland  
BRYANT, Mr. Robert E., Texaco, Inc., Port Arthur, Texas  
BUCK, Mr. R.H., Kelsye Hayes Co., Philadelphia, Pennsylvania  
BUNK, Dr. D.W., Institut fur Werkstofferschung, Porz-Wahn, Germany  
BUSH, Dr. S. H., U.S. Atomic Energy Commission, Washington, D.C.  
CARTER, Dr. Clive, The Boeing Company, Seattle, Washington  
CASAD, Mr. B.M., Continental Oil Company, Ponca City, Oklahoma  
CHANDLER, Dr. W., Rockwell International, Canoga Park, California  
CHANGE, Prof. Frank C., Chem Kung University, Taiwan, Rep. of China  
CHAWLA, Prof. Dr. K.K., Instituto Militar de Engenharia, Rio de Janeiro, Brazil  
CHITTUM, Mr. Joseph K., Chevron Research Co., LaHabra, California  
CIBA, Geigy AG, Klybeckstr, Switzerland  
CLARK, Dr. W.G., Jr., Westinghouse, Pittsburgh, Pennsylvania  
CLARKIN, Dr. P.C. Office of Naval Research, Arlington, Virginia  
COCKCROFT, Dr. M.G., National Gas Turbine Establishment, Hants, United Kingdom  
COFFIN, Dr. Louis, General Electric Co., Schenectady, New York  
COHEN, Dr. Bennie, Aeronautical Systems Branch, Wright Patterson AFB, Ohio  
COHEN, Dr. Morris, Massachusetts Inst. of Technology, Cambridge, Massachusetts  
COLLINS, Mr. J.A., E.I. duPont de Nemours & Co., Wilmington, Delaware  
CORDOVI, Dr. Marcel A., International Nickel Co. of Canada, Ltd., New York, New York  
CORIOU, Dr. Henri, DCA/SECE, Fontenay aus Roses, France  
CORTEN, Professor H., University of Illinois, Urbana, Illinois

COTTON, Dr. J.B., Scarborough, Yorkshire, England  
COULTER, Mr. A.W., Dowell Division of Dow Chemical Co., Tulsa, Oklahoma  
COUPER, Mr. A.S., American Oil Company, Whiting, Indiana  
COUTSOURADIS, Mr. M.D., Centre de Recherches Metallurgiques, Liege, Belgium  
COWAN, Dr. Robert L., General Electric Company, Pleasanton, California 94566  
COX, Dr. Brian, Atomic Energy of Canada Ltd., Chalk River, Ontario, Canada  
CRAIG, Dr. H. Lee, Division of Ocean Engineering Atmospheric Science, Miami, Florida  
CROOKER, Mr. T.W., Naval Research Laboratory, Washington, D.C.  
CUNNINGHAM, J.E., Oak Ridge National Laboratory, Oak Ridge, Tennessee  
DANKO, Dr. J.C., General Electric Company, San Jose, California  
DAOTROIG, Dr. T., Division Production d'Energie, Le Bourget, France  
DAS, Mr. K.B., The Boeing Company, Seattle, Washington  
DAVIES, Prof. E., University College of Swansea, Glam, England  
DAVIS, Dr. H.M., U.S. Army Research Office-Durham, Durham, North Carolina  
DAVIS, Dr. Mark J, Sandia Laboratories, Albuquerque, New Mexico  
DECKER, Dr. Raymond, International Nickel Company, New York, New York  
DE BRAY, Dr. Werner, Siemens AG, Erlangen, Germany  
DE LUCCIA, Naval Air Development Center, Warminster, Pennsylvania  
DESESTRETE, Dr. Angre, Societe Creusot-Loire, Firminy, France  
DETERT, Prof. Dr. Ing Klaus, AEC, Frankfurt, Germany  
DEUTSCH, Dr. G., NASA, Washington, D.C.  
DE VAN, Mr. Jack H., Oak Ridge National Laboratory, Oak Ridge, Tennessee  
DEVEREUX, Professor O., University of Connecticut, Storrs, Connecticut  
DILLON, Dr. R.L., Battelle Pacific Northwest Laboratories, Richland, Washington  
DOLAN, Prof. Tom J., University of Illinois, Urbana, Illinois  
DONATI, Dr. J.R., Electricite de France, Moret-sur-Loing, France  
DORUK, Dr. M., Middle East Technology University, Ankara, Turkey  
DRALEY, Dr. Joe, Argonne National Laboratories, Argonne, Illinois 60439

VAN DROFFELAAR, Dr. H., DuPont of Canada, Ltd., Maitland, Ontario, Canada  
 DUQUETTE, Dr. David J., Rensselaer Polytechnic Institute, Troy, New York  
 EKBOH, Mr. Ragnar, Stal-Laval Turbin AB, Finspang, Sweden  
 EFFERTZ, Dr. P.H., Allianz-Zentrum F. Technik GmbH, Ismaning, Germany  
 ENGELL, Professor H.J., Max-Planck-Institut fur Eisenforschung, Dusseldorf, Germany  
 JESNITZER, Professor Erdmann, Technische Universitat, Hannover, Germany  
 ESSLINGER, Dr. P., Motoren-und Turbinen Union, Munchen-Allach, Germany  
 EVANS, Mr. G.B., Hawker Siddeley Aviation Ltd., Herts, United Kingdom  
 EVANS, Dr. U.R., Cambridge, Great Britain  
 FELTNER, Dr. Charles, Ford Motor Company, Dearborn, Michigan  
 FERRO, ENG. A.J.G. de Almeida, Centro de Investigacao, Sacavem, Portugal  
 FICHTER, Prof., Dr., EMPA, Dubendorf, Switzerland  
 FIDELLE, Dr. Jean-Pierre, C.E.A., Bruyeres-Le-Chatel, France  
 FISCHNEISTER, Prof. H., Chalmer Teknisk Hogskola, Goteborg, Sweden  
 FORSYTH, Mr. P.J.E., Royal Aircraft Establishment, Hampshire, England  
 FORTY, Dr. A.J., University of Warwick, Coventry Warwickshire, England  
 FOURIE, Dr. J.T., National Physical Research Laboratory, Pretoria, South Africa  
 GALLAGHER, Dr. J.P., University of Illinois, Urbana, Illinois  
 GAMMAL, M.El, O.N.E.R.A., Chatillon, France  
 GALVELE, Dr. Jose, Comision Nacional de Energia Atomica, Buenos Aires, Argentina  
 GARLICK, Mr. A., Reactor Development Lab, Windscale, United Kingdom  
 GEADA, Prof. S.M., Instituto Nacional de Investigacao Industrial, Lisboa, Portugal  
 GEGEL, Dr. H.L., Wright-Patterson AFB, Dayton, Ohio  
 GEIGER, Dr. T., Gebruder Sulzer, AG, Winterthur, Switzerland  
 GERBERICH, Mr. William W., University of Minnesota, Minneapolis, Minnesota  
 GJOSTEIN, Dr. Norman, Ford Motor Company, Dearborn, Michigan  
 GLENNY, Dr. R.J.E., Royal Aircraft Establishment, Hants, United Kingdom  
 GODARD, Mr. Hugh P., Ontario, Canada

GORDON, Mr. Gerald H., General Electric Company, Pleasanton, California  
GRAF, Dr. L., Wilhelmsplatz, Harback, Germany  
GREENFIELD, Dr. P., G.E.G. Turbine Generators, Ltd., Leicester, England  
GREER, Dr. James B., Esso Research Co., Houston, Texas  
GRIMM, Mr. T.C., McDonnell Aircraft Company, St. Louis, Missouri  
GOULD, Mr. George, General Electric Company, Schenectady, New York  
GRUHL, Prof. Dr. Ing. W., Leichtmetall Forschungsinstitut, Bonn, W. Germany  
GUNNARSON, Director Sten, Oxelosunds Jarnverk, Oxelosund Sweden  
HAHN, Dr. George, Battelle Columbus Laboratories, Columbus, Ohio  
HARRISON, Dr. J.T., Gas Council Engr. Res. Station, Newcastle, England  
HARTWIG, Dr. Ing. J., Krupp Forschungsinstitut, Essen, Germany  
HAYCOCK, Mr. Ernie, Shell Development, Houston, Texas  
HEADY, Mr. R.B., Shell Development Company, Houston, Texas  
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HIMMEL, Alusuisse, Neuhausen, Switzerland  
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HOFFMAN-La Roche & Co. AG, Basel, Switzerland  
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HUDDLE, Mr. R.A.U., OECK, Winfrith, United Kingdom

HYATT, Dr. Michael V., The Boeing Company, Seattle, Washington  
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KONDO, Dr. Tatsuo, Japan Atomic Energy Res. Inst., Ibaraki-ken, Japan  
KOWAKA, Dr. Masamichi, Sumitomo Metal Industries, Amagasaki, Japan  
KRAFT, Dr. Joseph, Naval Research Laboratory, Washington, D.C.  
KRAINER, Dr. E., Gebr. Bohler & Co. AG, Kapfenberg, Austria  
KRUGER, Dr. Jerome, National Bureau of Standards, Washington, D.C.  
LACOMBE, Dr. Paul, Universite Paris Sud, Orsay, France  
LAIRD, Dr. Campbell, University of Pennsylvania, Philadelphia, Pennsylvania  
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LECKIE, Dr. Harry P., Inland Steel Co., East Chicago, Indiana  
VAN LEEUWEN, Dr. H.P., National Aerospace Lab. NLR, Amsterdam, Netherlands  
LEVY, Dr. Sandor S., Reynolds Aluminum, Richmond, Virginia  
LINDSTRAND, Mr. Erik, Granges Essem, Finspang, Sweden  
LIPSITT, Dr. Harvy S., Wright-Patterson Air Force Base, Ohio  
LITTMANN, Dr. Walter E., The Timken Company, Canton, Ohio  
LORENZ, Mr. Roy, Combustion Engineering Co., Chattanooga, Tennessee  
LOUTHAN, Dr. H.R., DuPont Company, Aiken, South Carolina  
LOVELACE, Dr. A.M., Wright-Patterson AFB, Ohio  
LOW, Dr. J.R., Carnegie Mellon University, Pittsburgh, PA  
LUSTMAN, Dr. D., Westinghouse Electric Corp., West Mifflin, Pennsylvania  
MAGNANAI, Dr. N.J., Sandia Laboratories, Albuquerque, New Mexico  
MANSFIELD, Dr. F., Rockwell International, Thousand Oaks, Calif 91360  
MACHERAUCH, Prof. Dr. E., Inst. F. Werkstoffkunde, Karlsruhe, W. Germany  
MARANDET, M. Bernard, IRSID, St Germain en Laye, France  
MARCUS, Dr. H. L., Rockwell International, Thousand Oaks, California  
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MC CLINTOCK, Professor Dr. F., Massachusetts Institute of Technology, Cambridge, Mass  
MC COY, Dr. Robert A., Naval Facilities Engineering Command, Washington, D.C.  
MC EVILY, Prof. Dr. A., University of Connecticut, Storrs, Connecticut  
MC MARY, Dr. T.A., Babcock & Wilcox, Alliance, Ohio  
MC NITT, Virginia Polytechnic Institute and State University, Blacksburg, Virginia  
MC MAHON, Prof. Dr. Charles, University of Pennsylvania, Philadelphia, Pennsylvania  
MITSCHKE, Prof. Dr. R., Institut f. Metallkunde, Leoben, Austria  
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MONTUELLE, M. Jean, C.H.R.S., Vitry, France  
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NEILL, Mr. W.J. Jr., Humble Oil and Refining Co., Linden, New Jersey  
NELSON, Mr Howard G., Ames Research Center, Moffett Field, Calif 94305  
NICHOLSON, Dr. R. B., International Nickel Company, Birmingham, England  
NIEDER, Mr. R., Arbeitsgemeinschaft Versuchsreaktor AVR GmbH, Dusseldorf, Germany  
NIELSEN, Mr. N.A., DuPont Experimental Station, Wilmington, Delaware  
NORGERG, Mr. L. A., Stal-Laval Turbin AB, Finspong, Sweden  
NORDIN, Mr. S., Uddeholm Company, Hagfors, Sweden  
NOVAK, Dr. Steve, U.S. Steel Corporation, Monroeville, PA  
NOVOTNY, Prof. Dr. Hans, Universitat Wien, Wien, Austria  
OKADA, Dr. Hideya, Nippon Steel Corporation, Kawasaki, Japan  
OKKERSE, Dr. B., Technische Hogeschool Delft, Delft, Netherlands  
ORIANI, Dr. Richard, U.S. Steel Corporation, Monroeville, Pennsylvania  
OSOZAWA, Nippon Yakin Kogyo Co. Ltd, Kawasaki, Japan  
OSTBERG, Docent Gustav, AB Atomenergi, Nykoping, Sweden  
PACKER, Dr. Kenneth F., Packer Engineering Associates Inc., Naperville, Illinois  
PANIC, Mr. Bozidar, Laboratorium fur Formfestigkeit, Winterthur, Switzerland  
PARIKH, Dr. N., IIT Research Institute, Chicago, Illinois  
PARKINS, Dr. R.N., University of Newcastle, United Kingdom  
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Appendix III. Some remarks that reached us with the returned questionnaires.

"...our laboratory scientists will participate in a major way..." C.R. Isleib, INCO, New York.

"The Handbook of Stress Corrosion Cracking and Corrosion Fatigue of Metallic Materials, looks like a very ambitious undertaking and one that will be very worthwhile to the metallurgical community." Monroe S. Wechsler; Chairman, Dept. of Metallurgy; and Chief, Metallurgy Division Ames Laboratory, USAEC.

"I will be happy to contribute in whatever way I can to this project, which sounds to be an effort which could be of great benefit to everyone interested in this problem area." B. Cox; Head, Materials Science Branch; Chalk River Nuclear Laboratories; Atomic Energy Commission.

"Packer Engineering would be happy to assist in the preparation of the handbook." Kenneth F. Packer, President, Packer Engineering Associates.

"...our group at Georgia Tech would be happy to assist in whatever way we can either through contributions and information, reviewing draft chapter, or providing editorial comments." Robert F. Hochmann; Associate Director for Metallurgy; Georgia Institute of Technology; Atlanta, Georgia.

"Roger: It must be very stimulating to be working with Mark Speidel, Harry Paxton, Walt Boyd, and Floyd Brown on this important project. We would be pleased to cooperate in reviewing draft chapters and in any other way which seems appropriate. We also would be pleased to add information from our work. ."  
Ellis D. Verink; Chairman, Dept of Materials Science and Engineering; University of Florida; Gainesville.

"...the handbook on stress corrosion cracking is an excellent idea and Dr. Troiano and I would be happy to contribute in any way possible..." R. F. Hehemann; Professor of Physical Metallurgy; Case Western Reserve University; Cleveland, Ohio.

"I will participate in the ARPA Handbook Project. I will be glad to supply reports we have written and will review the draft chapter..." Joseph R. Stephens, Materials Development Section, Lewis Research Center, NASA.

"...sounds like an ambitious--most worthwhile project." J. Krafft; Naval Research Laboratory; Washington, D.C.

"Glad to see you have a good project" George F. Kappelt, Bell Aerospace Company.

"The handbook project is certainly most useful and valuable" Per Kofstad; Central Institute for Industrial Research; Oslo, Norway.

"We are very glad to cooperate...copies of papers are air mailed to you today" M. Kowaka; Senior Research Engineer; Central Research Laboratories; Sumitomo Metals Industries; Amagasaki, Japan.

"...nous acceptons de participer à votre project The Handbook...nous nous tenons à votre disposition pour tous renseignements complémentaires." M. El Gammal; Le Directeur Scientifique Office National d'Etudes et de Recherches Aérospatiales (ONERA); Chatillion, France.

"...we participate in collaborative Swedish investigations into stress corrosion crack propagation as well as initiation of corrosion fatigue and we should be delighted to discuss this with you..." Bertil Aaronson; Manager, Uddeholm Steel Research; Hegfors, Sweden.

"It is a pleasure to participate in the Handbook Project in SCC and CF."

Ilorio Sato; Professor of Electrochemistry; Faculty of Engineering; Hokkaido University; Sapporo, Japan.

"...your project of collecting and presenting available SCC data is extremely useful..." Dieter Landolt, Professor of Chemical Metallurgy, Ecole Polytechnique Federale De Lausanne, Switzerland.

"...I will pleasantly contribute to the handbook..." Prof. Dr. Th. Skoulikidis; Director, Laboratory of Physical Chemistry and Applied Electrochemistry; National Technical University of Athens; Greece.

"...very interesting and comprehensive proposals..." R.B. Nicholson; Director of Research and Technical Development; International Nickel Limited; Birmingham, England.

"Wir halten Ihr Vorhaben für ausserordentlich wertvoll, so dass wir Ihre Pläne gern unterstützen wollen..." A. Rahmel, DECHEMA, Frankfurt, Germany.

"I think your ARPA project is a noble, if ambitious, one. I will of course be honored to assist in this project in any way that I can..." E.J. Wheelahan, Ch., Materials Function, G.E. and M. Dir. U.S. Army Missile RD & E Lab, Redstone Arsenal, Alabama.